White Paper Report

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Final White Paper Report

Grant HD-51427-11
Libretto, a multimodal open-source variorum eBook reader

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Project Director: Doug Reside
The New York Public Library
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The National Endowment for the Humanities' (NEH) Digital Start Up grant of $50,000 supported the development of *Libretto* (formerly MOVER), a multimodal open-source variorum eBook reader, at The New York Public Library (NYPL). *Libretto* is an Android app that patrons can use to read and study media-enhanced editions of texts and musical scores that exist in multiple versions using the newly-released ePub 3.0 ebook format and the Android and iOS mobile operating systems. The first release of the app (now available for free download on the Google Play store and from GitHub) includes a variorum (multiple version) edition of the libretto and score of the once enormously popular but now largely forgotten 1866 melodrama, *The Black Crook*. Using the software developed for this project, readers are able to read the libretto and sheet music in multiple versions and hear the associated music. We believe *Libretto* is the first open source software capable of presenting variorum and multimodal ebooks on an Android platform.

Project activities

All proposed project activities have taken place. As reported to NEH previously, project implementation took a different route than originally proposed. For example, the original application proposed to partner with the Maryland Institute for Technology in the Humanities (MITH) (Project Director Doug Reside's former employer) to build the app. However, in the time between proposing and receiving the grant, NYPL formed its own digital humanities group (NYPL Labs) with its own permanent staff of developers who initially planned to take on the work.

However, in early spring 2012, as the Labs program became more established and more successful, and it was clear that the team's involvement with crowd-sourcing experiments like the award-winning, NEH-funded *What's On The Menu?* Project reduced its capacity to take on the work of *Libretto*. MITH was likewise occupied with other work and *Libretto* grant funding as not sufficient to hire an additional, qualified full-time developer. Accordingly, NYPL requested and received permission to employ a contractor to finish the technical work while Reside constructed the edition of *The Black Crook*.

After a targeted search, we engaged a vendor based in Washington, D.C. with deep experience in eBooks and familiarity with the standards of both ePub 3.0 and the standards of the Text Encoding Initiative, to complete the app. The company was recommended by another Digital Humanities project working on a Shakespeare app.

Unfortunately, the remote oversight of development at the company proved difficult. The developers did their best to understand the very specific problem we were trying to solve, but as we were still constructing the libretto during the development process, they had limited testing texts with which to work. The product delivered in the spring of 2013 met the minimal specifications, but was not ready to be released.

Nonetheless, the code was relatively clear and the company provided Reside with a good walkthrough prior to the end of the contract. Reside then worked throughout the remainder of 2013 and into January 2014 to complete both the edition and the app. He also built a small tool to synchronize variant versions of a text in a new tool called TEI2LIBRETTO (the code for which is now available in GitHub).

In the last few months of the grant, we engaged a prominent New York City music director (Fran Minarik) to transcribe and produce Finale files for most of the sheet music from the original production. These files were exported to Scalar Vector Graphics (SVG) files that can be viewed in any modern web browser and in the app itself. We also commissioned Adam Roberts, a music director in Austin, Texas, to produce audio recordings of nearly all extant music from pre-19th century versions of the show. Most of the songs he recorded have never before been recorded (although "You Naughty Men" is referenced in several histories of Broadway musicals). These are available from the NYPL website and those associated with the original production are packaged with the app. Because of file size limitations, we decided not to include all of the recordings from later productions in the app itself, but users can use the app to substitute these songs if they wish.

After releasing the app on the Google Play Store, NYPL staff used social media (Twitter and Facebook) to promote the release. Reside has worked to create interest within the performing arts community, regularly promoting the collections of NYPL's Library for the Performing Arts through his Musical of the Month blog series and other postings (http://www.nypl.org/blog/author/doug-reside). A recent posting provided an overview to using the *Libretto code (*http://www.nypl.org/blog/2014/04/21/code-walkthrough-libretto). Reside also promoted the app on relevant list-servs (CASTREC-L, ATHE-MTD, and the Dramaturg's list). It was then discussed in a short article on *Library Journal*'s website (see Attachment A). Reside also plans to present the work at the 2014 Digital Humanities conference in Lausanne, Switzerland.

Accomplishments

In the original grant narrative we proposed to accomplish the following:

1. **An extension of the ePub encoding standard capable of describing variorum editions texts and associating the text with audio content.**

This extension is complete. The sample *Libretto* of *The Black Crook* builds on the ePub 3.0 specification, and can be opened (with limited functionality) on most ePub applications. While this extension is not yet incorporated in the ePub specification or implemented in any app other than *Libretto,* our extension can serve as a reference implementation for those working on the standard.

2. **A modification of the Threepress stylesheet capable of transforming TEI to this modified ePub format.**

We discovered in the course of the work that a stylesheet was not the best technology for producing a zip file that contains sub-folders. The TEI2LIBRETTO code in GitHub, however, does provide a mechanism for converting TEI to ePub and so satisfies the intent of this proposal.

3. **An app for the Android operating system capable of reading this modified ePub.**

Libretto is now available both on GitHub and in the Google Play store and satisfies this requirement.

4. **An edition of *The Black Crook* for the app described in [3] above.**

The edition of *The Black Crook* is automatically available in the app after download which includes sheet music, audio files, and five different versions of the text (the published 1867 edition from The Library of Congress, prompt books from NYPL, the Harvard Theater Collection, and the Hampden-Booth Theater Library, and an original draft manuscript from the Harvard Theater Collection). There was no copy at the Museum of the City of New York, but we did examine the collections there.

5. **An open source repository of all project code in GitHub documented with the goal of serving as an example for others trying to learn mobile application development.**

The final version of the code as well as several earlier attempts by the vendor are available in two public GitHub repositories (*Libretto* and *MOVER*) belonging to project director Doug Reside.

Audiences

The audience for this project is world-wide and includes high school students through all technologically savvy adults. While the ability to compare different versions of a text may be of most interest to textual scholars, the user interface does not depend on any specialized understanding of symbolic or formatting conventions of this community. Users simply swipe left or right to move among versions of the text. In the past, those who did not live on the east coast would have had difficulty accessing these texts. Now, anyone with an Android device may do so. Further, the decision to develop the app for Android rather than iOS ensures that access to the app is available even to those who cannot afford the relatively expensive Apple products.

Since the app launched on the Google Play Store on February 11, 2014, it has been installed 92 times and remains on 61 devices. Although 73.7 percent of all users are from the United States, there is at least one user in Japan, South Korea, Mexico, Italy, Greece, Colombia, Bolivia, Australia, and the United Kingdom.

Response

The project budget did not include funds to run a formal evaluation, so responses gathered are anecdotal. No user has yet rated the app in the Google Play store, but the initial announcement received excited responses on both NYPL's website with comments that included:

"This is, well, pretty darn amazing. There's a huge technical void when it comes to teaching musical librettos - no other app has the potential to address it as well as this one does! This is an amazing start - ridiculously good."

Similarly, days after the release, a major contemporary Broadway composer wrote an unsolicited email to Reside praising the app and announcing his plans to use it in his musical theater classes.

Several potential users did express disappointment that the app was only available to Android users. One commenter on NYPL's website wrote:

"Wow! Huge congrats on this Mr. Reside. This sounds completely amazing! I'm heartbroken that I can't use it on my iPhone or iPad. Any chance in the future that the app will be released for apple products? Anyways, again, congrats and thanks for the recordings as well!"

Continuation of the project

There is clearly interest in this further development of this product. Although we made no commitments beyond what was proposed in the narrative, we would like to release an iOS version eventually. Without additional resources, though, development will proceed slowly.

Additionally, Reside's Musical of the Month blog series, which publishes one important, older musical theater script each month, continues to be popular and regularly ranks among the top viewed blogs at the library. We hope to begin to distribute some of the Musical of the Month libretti via *Libretto* in the near future.

Finally, an early demo of the app led to an expression of interest in the work by play licensor Samuel French. They are now working with Reside on an "enhanced eBook edition" of one of their plays. While the code for this is not based on *Libretto*, some of the ideas do originate with the app.

Long Term Impact

Libretto marks the first major foray into the ePub world made by The New York Public Library. While the usage of the app has thus far been limited, it represents the first of its kind and has helped to signal that NYPL can lead such efforts to reimagine reading in the 21st century.

NYPL has also recently embarked on a major project to develop an open source ePub reader capable of reading borrowed e-books that must communicate with standard DRM servers. While this app is being developed for iOS initially, it is possible that the Android version will use some code developed for *Libretto*.

Grant Products

Libretto app:
https://play.google.com/store/apps/details?id=org.nypl.libretto

Libretto code:
https://github.com/dougreside/Libretto

TEI2LIBRETTO tool:
https://github.com/dougreside/TEI2LIBRETTO

MOVER previous versions
https://github.com/dougreside/MOVER/

Blogs about *Libretto*
http://www.nypl.org/blog/2014/02/11/announcing-libretto
http://www.nypl.org/blog/2014/04/21/code-walkthrough-libretto

New York Public Library Releases A New App For Android

infodocket.com/2014/02/13/new-york-public-library-labs-debuts-new-app-for-android/

Gary Price

It's the first public release of an Android only app (at least at this time) named Libretto.

Since we use iOS we haven't been unable to use the app that only became available in the past day or so.

What is it?

Here's some of what Doug Reside, Digital Curator of Performing Arts, Library for the Performing Arts from NYPL Labs has to say in an introductory blog post:

> When I initially proposed this app, I gave it the code name M.O.V.E.R. (the "Multimodal Open-Source Variorum EBook Reader"), but wiser heads prevailed over the last few months, and we renamed the app, simply, *Libretto.* Still, the earlier name does describe the functionality of the app well.
>
> Because the texts of musicals are very open and sometimes exist across multiple versions (think Show Boat or Anything Goes), this app allows you compare different editions of the script as you are reading simply by swiping right or left. In the world of textual scholarship, a book that publishes multiple, differing copies of the same basic text is called a "Variorum Edition." This app is a multimodal variorum edition because it communicates in two different modes: audio and textual. You can compare different versions of the text AND different versions of the music.
>
> For testing purpose for this initial release, we are providing a variorum edition of the 1866 American melodrama, The Black Crook, which some historians may have once believed to be the first American musical. Although the extant scripts for this piece differ very little, the music that was used in its many revivals changed frequently. The e-book is bundled with 10 recordings (most with sheet music) of music associated with the first production in 1866. However, if you like, you can also substitute music from later productions by downloading the music [linked in the blog Reside's blog post] and using the app to select it instead.

Source: via Google Play
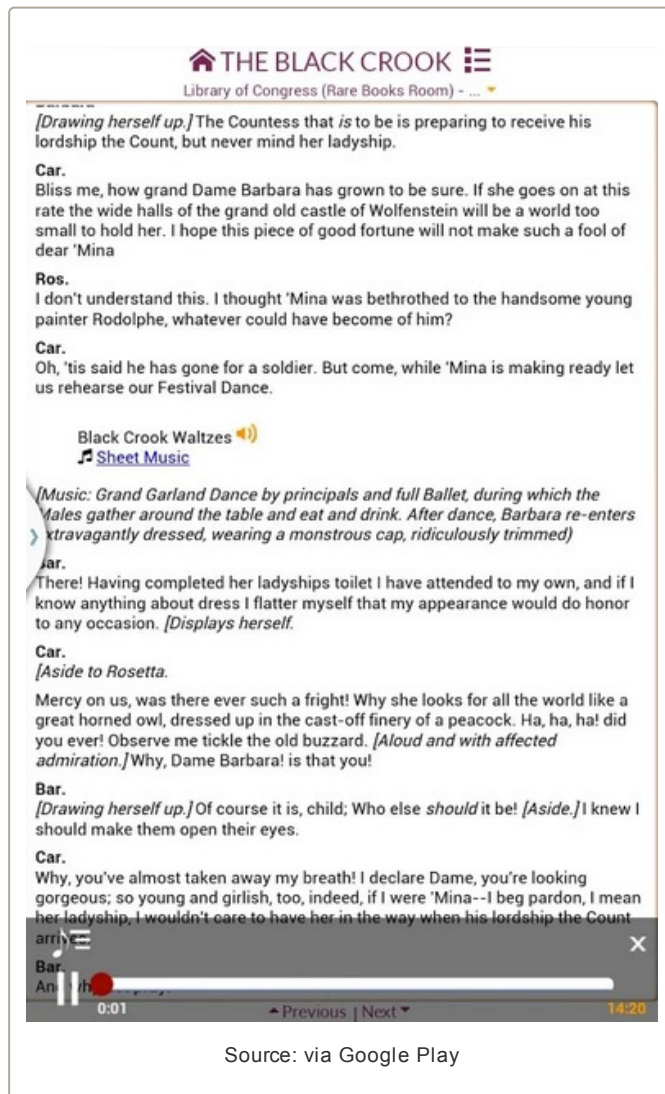
The code for Libretto is open and available on GitHub.

Read the Complete Blog Post for More Info Including What Inspired this App.

Version 1.0 of Libretto is now available from Google Play. The app is free to download and use